THE PORT AUTHORITY OF NY & NJ

TENANT CONSTRUCTION REVIEW MANUAL

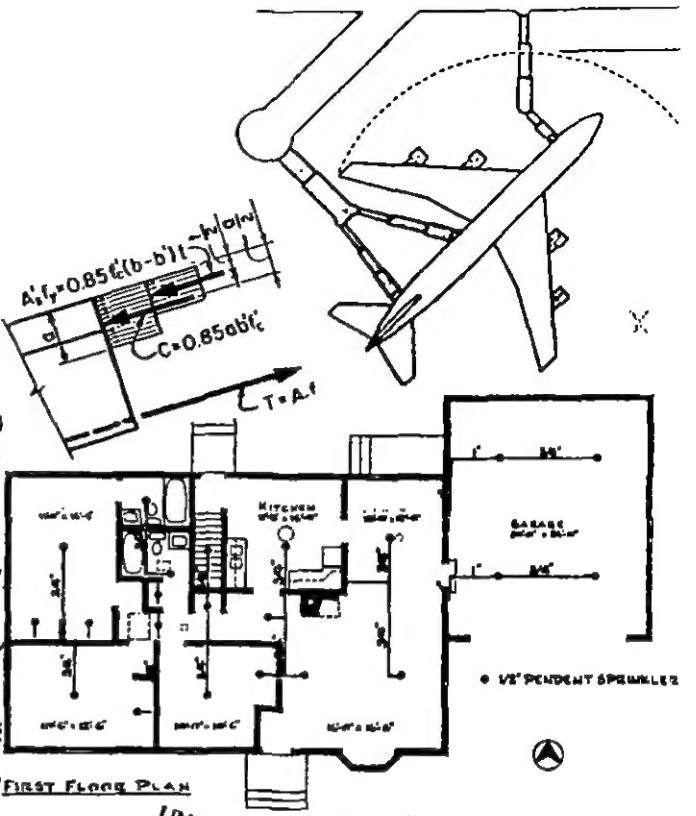
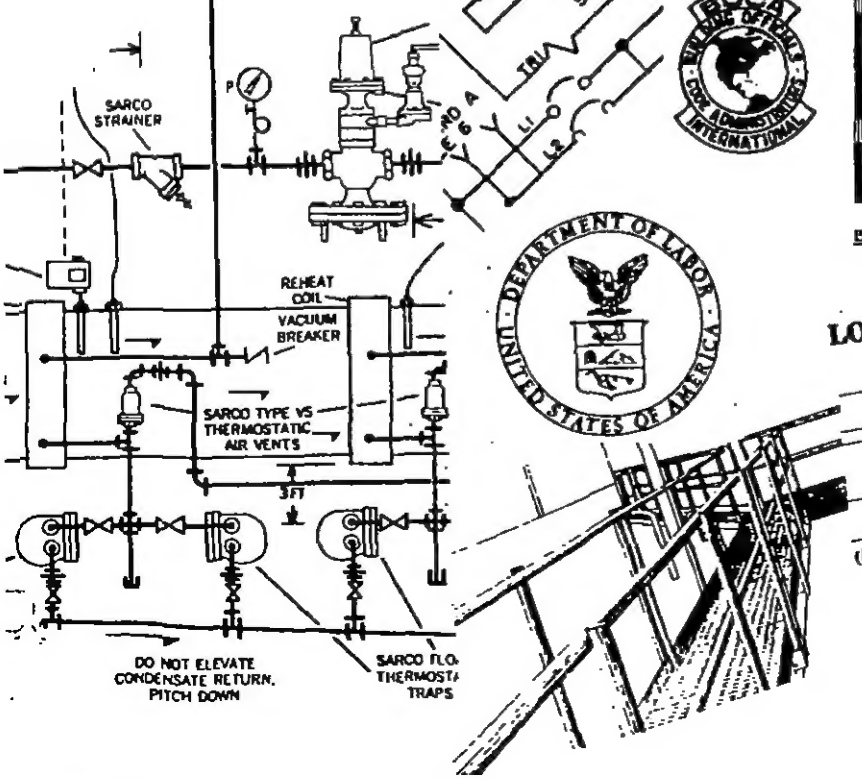
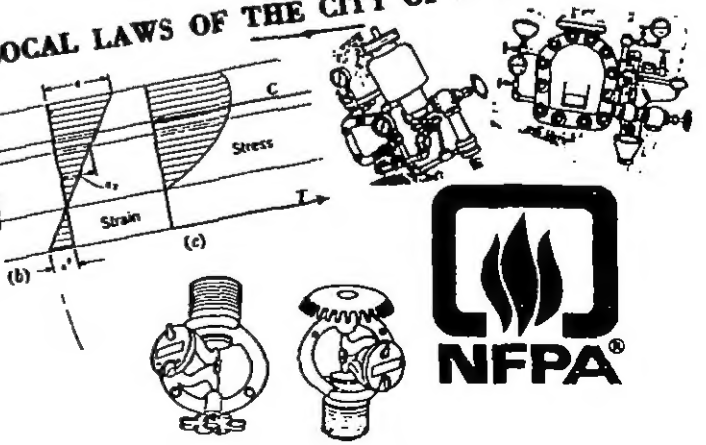


Figure 3.

UNIFORM CONSTRUCTION CODE



LOCAL LAWS OF THE CITY OF NEW YORK



1979

P R E F A C E

THE FOLLOWING IS A PRESENTATION OF TECHNICAL CRITERIA USED IN THE REVIEW OF TENANT CONSTRUCTION. IT HAS BEEN PREPARED IN AN EFFORT TO DEFINE THE CONCERNS OF THE TENANT CONSTRUCTION REVIEW UNIT

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WORK SHEETS RECOMMENDED TO FACILITATE TENANTS' PREPARATION OF APPLICATION AND P.A.'s REVIEW PROCESS

INTRODUCTION

This pamphlet has been prepared to facilitate the proper and expeditious execution of review work in the Tenant Construction Review Unit. It tries to achieve this subdividing a job into separate disciplines and thus clarifying the possible scope of a project from functional and technical points of view. Detailed checklists based on Building Codes, prepared for each discipline, cover the main areas of design and detailing that are expected to receive special attention. Finally, design, safety and field coordination criteria additional to Building Code requirements are listed under each discipline.

It is hoped that this pamphlet will create a degree of consistancy in review work, and, will establish the basic minimum requirements which must be incorporated in the submitted plans and specifications.

CODES, RULES AND REGULATIONS

NEW YORK

(1) N.Y.C. Building Code

- (a) New Code, Effective December 6, 1968
- (b) Old Code, Effective 1938
- (c) N.Y.C. Electrical Code

(2) Rules of "The Board of Standards and Appeals" of N.Y.C.

(3) N.Y. State Labor Law
N.Y. State Energy Conservation Construction Code

NEW JERSEY

Since January 1977 all communities in the State are required to conduct their construction activities in accordance with the STATE UNIFORM CONSTRUCTION CODE which was made part of the New Jersey Administration Code (NJAC) as Chapter 23 of Title 5. Under the code the following subcodes have been adopted:

1. Building subcode - The BOCA Basic Building Code/1978
2. Plumbing Subcode - The National Standard Plumbing Code/1978
3. Electrical Subcode - The National Electrical Code/1978
4. Fire Protection Subcode - Portions of BOCA & NEC applicable to fire protection
5. Energy Subcode - (a) BOCA Basic Energy Conservation Code
   (b) Illuminating Engineers Society Standard EMS-1: Lighting and Power Budget Determination Procedure

All above Subcodes were adopted with a provision that they shall "include all subsequent revisions and amendments thereto". Also certain specific sections of the subcodes have been altered or deleted.

Also in New Jersey the following codes are in effect:

1. Barrier-Free Design - promulgated by the Dept. of Treasury - Division of Buildings & Construction
2. NJAC - Title 12 - The Labor Law
3. NJAC - Title 7 - Environmental Protection Laws

STANDARDS APPLICABLE IN ALL P.A. FACILITIES

1. Occupational Safety & Health Act (OSHA)
2. Federal Standard for Making Buildings Usable by the Physically Handicapped (P.L.-90-480) (ANSI A117.1)
3. Federal Floodproofing Regulations
4. F.A.A. - Standards (at Airports)

GENERAL REQUIREMENTS

1. Each application submitted must be accompanied by properly completed and executed application form, supplied to the tenant by the Port Authority.

2. For proper technical review besides the drawings, signed and sealed by the Registered Architect or the Professional Engineer, design criteria, specifications and calculations shall be submitted.

3. In order for the Port Authority to obtain the N.Y.C. Fire Department approval of the proposed fire alarm installation, three sets of the following information are required to be sent to the P.A., via the tenant's Alteration Application.

    a. A plot plan of the building showing the exact location of the fire alarm boxes and their relationship to site conditions, i.e., roads, sidewalk, fences, island, building exits, etc.

    b. Details of fire alarm pedestal, foundation, cable, installation procedures, etc.

    c. Specifications for fire alarm equipment, cable, installation procedures, etc.

    d. The above may be submitted in the form of Contract Drawings, sketches and formal specifications, for proper transmittal by P.A. to the NYC Fire Department.

4. Before starting work on sprinkler systems, dry chemical, Halon, or other fixed pipe fire extinguishing systems, shop drawings shall be submitted to the P.A. Risk Management Division, and then filed with the P.A. Resident Engineer or Facility Manager.

5. When an application is approved, two (2) sets of complete plans and specifications shall be submitted to P.A.; for new buildings and major applications, one set will be filed with the Buildings Department by the P.A.

6. At the termination of construction a complete set of as-built drawings, on microfilm, or on cloth, shall be submitted to the P.A. Specifications for microfilm mounted on aperture cards can be obtained from the Business Administration office at the facility.

7. Contractors shall obtain P.A. permits for any welding and hot work, in addition to being licensed by the state or the municipality, where applicable.

8. In order to effectuate the policy of the Port Authority of New York and New Jersey, the Tenant shall comply with all provisions of federal, state, municipal, local and departmental laws, ordinances, rules, regulations, and orders which might affect the contract and the performance thereof and those engaged therein, except where stricter requirements are contained in the specifications or indicated on the drawings, the latter shall be followed. The Tenant or his agents shall not apply for any variance, license, waiver or permit of any kind in the name of or on behalf of the Port Authority.

FUNCTIONAL REVIEW

A Functional Review is a service to a tenant, when requested by him, supplementing his consultants' feasibility study, reviewing their design criteria, and acquainting them with specific pre-existing conditions of compliance with a Building Code or PANY/NJ criteria that would affect the proposed work. Functional Reviews shall be confined to fundamental concepts, items that may prohibit construction or substantially affect the design.

Submitted plans shall establish the applicable Codes and be accompanied by design criteria.

The scope of the Functional Review shall include, but not necessarily be limited to, the following items.

BUILDING CODE

1. Occupancy group and construction classification of the altered and adjacent areas.

2. Fire integrity of spaces in the building as it applies to shafts, rating of interior separations, rating of exterior walls and sprinkler requirements.

3. Egress. Density of occupants and adequacy of egress shall be established. Alternately, tenant's architect/engineer may list the applicable sections of the Code on which the design is based. New tenant egress scheme shall be coordinated with existing conditions, e.g.,

    a) in IAB, where basic egress conforms to Old Code, stairs are provided from each floor on basis of 75% of tenant space used as assembly (1 person per 10 S.F.) and 25% office (1 person per 100 S.F.).

    b) Also in IAB an "exterior passageway" with a minimum predetermined width is laid out on 3rd floor, to which egress can be made.

    c) On the third (3rd) floor of the Terminal Building at LGA a Safe Area exists in compliance with Article 8 of the 1968 Code as part of the overall means of egress from the floor.

4. Unusual structural conditions, including foundations, shall be referred to the structural reviewer.

5. Special mechanical or electrical problems affecting unusual environmental, energy or power commitments, or other deviations from Code provisions, shall be referred to the mechanical or electrical reviewer.

6. Existing structures shall be reviewed for existing Code violations.

PANY/NJ CRITERIA

1. Sprinklers in conveyor spaces.

2. Adaptation of Code and NFPA standards to loading bridges, hangars and terminal buildings.

3. Protection of building areas exposed to fuel spillage and drainage (See Section 7 of this manual).

4. Requirements for carpets, furniture, etc.

COORDINATION WITH AIRPORT FACILITIES

1. Electrical: Anticipated new power requirements shall be referred to the electrical reviewer.

2. Water supply: Coordination of any demand for chilled water, high temperature water, domestic water, high pressure sprinkler supply water, and connections to the fire protection loop, shall be referred to the Civil, Mechanical, and Plumbing Reviewers, and/or the Fire Protection engineer.

3. Any work affecting the fuel lines shall be referred to the appropriate engineer.

ARCHITECTURAL

A. PLANS, NOTES, SCHEDULES

Plans

1. Each plan shall contain the registration number, seal, signature and address of Architect or Engineer who prepared the plans. C26-110.2.

2. (For new buildings or extensions to buildings), plans shall contain a lot diagram showing all existing adjacent structures and their distances from the proposed construction. C26-110.2(a).

Notes

1. The plans and specifications comply with N.Y.C. Building Code, effective December 6, 1968 (and/or others). C26-108.5.

2. List of occupancy group or groups per C26-301.0 and construction classification per C26-314.0. C26-110.2(a).

3. Control elevations to be established per PANY/NJ Datum for the particular facility.

4. All materials, assemblies, forms or methods of construction, and equipment, that are subject to controlled inspection as provided in C26-106.2 and C26-107.2, shall be listed. C26-110.2. (Also see Section 12 of this Manual).

5. Carpeting and its integral backing and underlayments shall be certified by the manufacturer as having passed the methenamine pill test as per amended Federal Standard DOC-FF-1-70, Standard for the Surface Flammability of Carpets and Rugs. Also see pages 4.5 and 4.6 for recommended specifications.

   In New York City, in places of assembly, the draperies, decorations and carpeting with its integral backing and underlayments, shall be flameproofed in accordance with the rules of B.S. & A. (Cal #294-40-SR), and C19-161.1. In New Jersey, BOCA, Sections 904.0 and 923.0 are applicable.

   Carpets shall not be used in exits, as per C26-504.13(a), and, carpeting used on walls and ceilings shall comply with Code requirements for interior finish, and shall be approved by B.S. & A. or MEA, subject to a complete review.

6. Whenever any material or equipment is used, which was accepted under the "Code Test Method", C26-106.2(a)1, a certificate of the manufacturer shall be filed, certifying that the material tested was and is equivalent to materials of the same kind and quality regularly being manufactured by such manufacturer.

7. Certified copies of resolutions of acceptability for all materials or equipment approved by the B.S. & A. shall be filed. C26-106.2(a)2.

8. The Architect or Engineer by whom the controlled inspections are made, shall file signed copies of all required inspections, and test reports, together with his signed statement that the materials or equipment and their use comply with code requirements. C26-106.3(a).

9. All materials or equipment not designated for controlled inspection shall be subject to semi-controlled inspection as per C26-106.3(b) and C26-107.3. The person superintending the use of such materials or equipment shall file signed copies of all required inspections, and test reports, together with his signed statement that the materials, the equipment, and their use comply with code requirements.

10. All heating and combustion equipment fired with solid, liquid, or gas fuels, that is subject to the provisions of the code, including all rubbish burners and incinerators, shall comply with requirements of Air Pollution Control Codes.

11. Installation, alteration and maintenance of refuse disposal systems shall comply with the Air Pollution Control Code.

12. Compacting equipment shall meet the criteria of the Noise Control Code and be B.S. & A. approved. C26-1417.4(e).

13. The conveyor shall comply with Reference Standard RS 18-5, USA S1, B20.1, 1957 USA Standard Safety Code for Conveyors, Cableways, and Related Equipment. Conveyor belting shall be the best commercially available, as to the Flame Spread Rating and Smoke Development characteristics.

Schedules

Egress analysis could be presented in scheduled form, listing spaces, maximum and minimum numbers of persons, corresponding doors, stairs, passages, travel distance, etc.

Door and finish schedules should be provided.

B. CHECKLIST

The following is a checklist of the more significant code items with which the review will be concerned, but not limited to:

General

Classification of spaces
Classification of building
Separation of Occupancies
Frontage
Building Access
Area Limitations
Height Limitations
Sprinkler Requirement
Fire Protection Test Procedures
Roof Structures
Openings in fire divisions and fire separations
Shafts
Firestopping
Partitions and furring
Interior finish
Special uses and occupancies

Places of Assembly

Approved Seating Plan
Aisles and Cross Aisles
Travel Distances
Exit Openings
Open Exterior Spaces
Emergency Lighting

C. ADDITIONAL PORT AUTHORITY CRITERIA

1. Review shall extend to existing code violations which shall be listed.

2. Sprinklers in baggage handling and conveyor spaces.

3. Where the building code does not adequately cover the question of safety in certain installation, e.g., loading bridges, hangar buildings, and terminal buildings, all relevant NFPA standards shall be considered applicable. Section 7 of this Manual is an illustration of joint application of Building Code and NFPA Standards. Relevant NFPA Standards include 407, 415, 416 and 417.

4. Egress. Architect shall establish density of occupants and show adequacy of means of egress. Shall coordinate new tenant basic egress layout with existing conditions in existing building. Coordination with the particular facility design group should be made. See also Section 3 of this Manual

5. Requirements for furniture in places of assembly:

   All furniture should be constructed of the best commercially available flame resistive materials, or be treated to provide permanent fire resistive qualities, such as low properties of flame spread, ease of ignition, burning rate, fuel contribution, intensity of burning, products of combustion and others. Appropriate ASTM tests should be conducted on these materials, and certifications provided by the manufacturer indicating the quality of the materials used.

   Note: NFPA 416, Section A212, Recommendations Applicable to Airport Terminal Buildings, requires furniture, floor and wall coverings, including passenger holding lounges, waiting areas, restaurant dining rooms, bars, retail stores, etc. not to be made of materials that have a high combustibility and/or smoke development characteristics. Refer also to Section A251 and pages 4.5 and 4.6 of this manual for recommended specifications.

. Baggage Handling = B-2

Specifications Governing the Flammability of Upholstery Materials and Plastic Furniture

I

a) All upholstery materials, including covering, lining, webbing, cushioning and padding, shall be self-extinguishing as defined by Federal Specification CCC-T-191b Method 5903.

b) All materials used in these applications shall be tested vertically. The average burn length shall not exceed 8 inches and the average flame time after removal of the flame source shall not exceed 15 seconds. Drippings from the test specimen shall not continue to flame for more than 5 seconds after falling.

c) Test samples subject to the vertical test shall be tested using the thickness at which the material is to be used in the finished product; except that the maximum thickness of a test sample shall be one-half inch (½") in cases where the final product material exceeds this thickness.

II

a) Padding that exceeds one-half inch (½") thickness and all cushioning shall be tested in accordance with either ASTM E84-70, Tunnel Test, or ASTM E162-67, Radiant Panel Test. Padding and cushioning with a flame propagation index not exceeding 100 is acceptable for use with any self-extinguishing external covering.

b) Padding and cushioning with a flame propagation index exceeding 100 may be covered with self-extinguishing materials, complying with Item I above, which will comprise the final assembly of the cushion, arm rest, or other parts of the furniture piece, and tested, as an assembly, in accordance with Item IIa above. Composite assemblies with flame propagation index not exceeding 100 will be acceptable.

III

All self-supporting plastic materials shall be self-extinguishing as defined by the "Standard Method of Test for Flammability of Self-Supporting Plastics," ASTM Designation: D 635-68.

IV

In all testing procedures, except as noted in Ic above, the thickness of the materials and of the composite assemblies tested shall be the same as the thickness used in the finished item. Certifications submitted by the manufacturer shall indicate the thickness of the tested materials.

V

The manufacturer of the finished item shall submit a certification by a recognized, independent, testing laboratory of the results of tests specified above and of the service life of the flame retardancy of the treated material or a certification that the self-extinguishing properties of the material are inherent therein by virtue of the chemical properties of the material. Materials which are not inherently self-extinguishing may be used only when the certified flame retardant service life exceeds that of the planned service life of the finished item.

Specifications Governing the Flammability and Smoke Developed Rating of Carpets

I

All carpeting, backing, and underlayments shall pass the methenamine pill test (Department of Commerce Standard FF 1-70).

II

a) Carpeting assemblies, (carpet, underlay and adhesives) representative of the actual installation on floor areas of exits shall not have a flame spread index or smoke developed rating greater than 25.

b) Carpeting assemblies representative of the actual installation on floor areas of corridors shall not have a flame spread index greater than 75. The smoke developed rating of carpets in corridors shall not exceed 100.

III

Flame spread ratings for carpet assemblies in general areas shall not exceed 150 for areas less than 1,000 square feet and shall not exceed 100 for areas over 1,000 square feet.

IV

Other than for exits and corridors, where the requirements of item II above shall apply, smoke developed rating for carpet assemblies shall not exceed 200.

The ratings, specified in items II, III and IV above, shall be obtained in accordance with the requirements of ASTM E-84-70 "Standard Method of Test for Surface Burning Characteristics of Building Materials – 1961."

In lieu of using the ASTM E-84-70 test method to determine the flame spread rating and/or the smoke developed rating for carpets other than in exits and corridors, the following tests and indices may be utilized. The radiant panel test method, ASTM E162-67,

may be used to arrive at the flame spread rating. The rating obtained from using this test shall comply with the requirements of paragraph III above. However, when the radiant panel test is used to obtain the flame spread rating for carpets other than in exits and corridors, the smoke developed rating shall be obtained by the National Bureau of Standards Smoke Density Chamber Test as described in "ASTM Special Technical Publication No. 422." If this test is used, the smoke developed rating, when taken as an arithmetical mean of the "flaming" and "smoldering" tests, shall not exceed 300; and the individual results of each test shall not exceed 375.

V

The manufacturer of the assembly components (carpeting and underlayments) shall submit a certification, by a recognized independent testing laboratory, of the service life of the flame retardance of the treated material or a certification that the self-extinguishing properties of the material are inherent therein by virtue of the chemical properties of the material. Materials which are not inherently self-extinguishing may be used only when the certified flame retardant service life exceeds that of the planned service life of the carpet and underlayments, when cleaning, traffic, and other environmental conditions, which may affect the treatment, are taken into consideration.

Specifications Governing the Flammability of Drapery and Curtain Materials

I

a) All drapery and curtain materials, including linings, shall be self-extinguishing as defined by Federal Specification CCC-T-191b Method 5903.

b) All materials used in making draperies or curtains shall be tested vertically. The average char length shall not exceed 8 inches and the average flame time after removal of the flame source shall not exceed 15 seconds. Drippings from the test specimen shall not continue to flame for more than 5 seconds after falling

II

The manufacturer of the finished item shall submit written certification for each component fabric of the completed items as follows:

a) If the material contains 100% fibers that are inherently flame resistant by virtue of the chemical properties of the untreated fiber, a written certification by a recognized, independent testing laboratory, attesting to the properties of all the fibers within, shall be submitted to the Port Authority.

b) If the material contains fibers which are not inherently flame resistant in the untreated state, a written certification by a recognized, independent testing laboratory shall be submitted to the Port Authority, attesting that the treated materials have maintained their self-extinguishing properties, as determined by the burn test in section I, subsections "a" and "b" above, after 12 washings and/or dry cleanings. The washing test procedure is to be performed as defined by the Technical Manual of the American Association of Textile Chemists and Colorists (AATCC) Test Method 124-1969 using the wash temperature of 120+5F and the "Tumble Dry" procedure. The dry cleaning test procedure is to be performed by subjecting the material to dry cleaning in a "Coin-Op" machine as manufactured by Norge or Westinghouse or an equal machine. The size sample of material and the machine size are to be commensurable to each other. When necessary, dummy pieces of material shall be added to the test specimens to make up a load equal to the machine rating.

STRUCTURAL

A. PLANS, NOTES, SCHEDULES

Plans

1. Each plan shall contain the registration, seal, signature and address of the Architect or Engineer who prepared the plans. C26-110.2.

2. Structural plans shall contain the information required by the code. C26-110.2(b).

Notes

1. Where structural review is required, structural calculations shall be submitted.

2. Upon completion of the soils and foundation review, the structural reviewer shall take all soils and foundation documents to the Engineer of Soils for his review and comments.

3. Upon completion of the superstructure review, the structural reviewer shall take all superstructure documents to the Chief Structural Engineer for his review and comments.

4. Building frames shall be checked for stability and inhibition of side-sway and the effect of same on the slenderness ratio of the columns.

5. All materials, assemblies, forms or methods of construction and equipment that are subject to controlled inspection shall be listed on drawing. See Section 12 of this Manual.

6. Rules and Regulations listed on p. 5.4 shall also be referred to as required.

Schedules

All required schedules for structural and foundation elements are required to be on the plans, i.e. buttress and pier schedule, grade beams, column schedule, etc.

B. CHECKLIST

The following is a checklist of the more significant code items with which the review will be concerned, but not limited to:

Loads

- Dead Loads
- Floor Live Loads
- Live Loads for Sidewalks, Driveways & Railings
- Roof Loads
- Moving Loads
- Partial Loading Conditions
- Floor Live Load Reduction
- Contributory Floor Areas
- Wind Loads
- Thermal Forces
- Shrinkage
- Distribution of Loads

Structural Work

- General Requirements
- Material & Methods of Construction
- Inspection of Materials & Assemblies
- Inspection of Methods of Construction
- Use of Used & Unidentified Materials
- Equivalent Systems of Design
- Deferred Detailing
- Combination of Loads
- Load Tests
- Fire Protection Requirements

Soils and Foundation

- Depths of Foundations
- Foundations at Different Levels
- Slabs on Grades Construction
- Borings
- Probings & Geophysical Explorations
- Foundation Loads
- Classification of Soils Materials
- Allowable Soil Bearing Pressures
- Bearing Capacity of Nominally Unsatisfactory Bearing Materials
- Soils Loading Bearing Tests
- Footings
- Foundation Piers
- Foundation Walls

Pile Foundations

Administrative Requirements
Minimum Pile Penetrations
Minimum Spacing of Piles
Capping & Bracing of Piles
General Requirements for Installation of Piles
Allowable Axial Loads on Piles
Allowable Lateral Load

Pile Driving Operations

Equipment
Procedures

Pile Types

Timber Piles
Precast Concrete Piles
Cast-In-Place Concrete Piles
Compacted Concrete Piles
Steel "H" Sections
Concrete Filled Pipe Piles
Caisson Piles
Composite Piles
Underpinning
Stability

Inspection

Controlled Fills
Boring Operations
Piling; Installation and Testing
Subgrade for Footings, Foundation Piers & Walls
Support of Adjacent Properties or Building

Reports Required

Verification - Stabilized Overburden
Bearing Capacity of Nominally Unsatisfactory Bearing Material
Alternate or Similitude Method for Pile Load Verification
Substantiation of Higher Allowable Pile Loads

C. ADDITIONAL PORT AUTHORITY CRITERIA

Buildings designed and/or constructed by PANY/NJ that are being altered should be coordinated with the particular facility design group, especially for foundation requirements.

RULES AND REGULATIONS RELATING TO STRUCTURAL ITEMS
(Applicable in N.Y.C.)

1. Rules and Regulations Relating to Resistance to Progressive Collapse Under Extreme Local Loads (Bldg. Dept.).

2. Rules and Regulations for the Design of Composite Construction with Metal Decks or Lightweight Concrete (Bldg. Dept.).

3. Rules Relating to Structural Designs Based on Electronic Computer Computations (Bldg. Dept.).

4. Rules and Regulations Relating to the Design and Installation of Curtain Wall Systems (Bldg. Dept.).

5. Rules for Application and Protection of Sprayed-On-Fireproofing (BSA Cal. #118-68-GR).

6. Rules and Regulations for Masonry Parapet Walls. (Bldg. Dept.)

7. Rules for Arc and Gas Welding and Oxygen Cutting of Steel Covering the Specifications for Design, Fabrication and Inspection of Arc and Gas Welded Steel Structures and the Qualification of Welders and Supervisors (BSA Cal. #1-38-SR).

8. Rules for Governing the Marking of Transparent Glass Doors and Fixed Adjacent Glass Sidelights (BSA Cal. #501-68-SR).

9. Rules for the Manufacture, Testing and Use of Concrete Masonry Units (BSA Cal. #639-40-SR).

CIVIL

A. DRAWINGS

Drawings shall be provided showing the following:

1. Location and plot plan with lease line bearing all coordinates.

2. All underground utilities (new and existing) shall be shown.

3. Details for all utility appurtenances shall be shown.

4. All areas to be paved shall have pavement details shown.

5. Aircraft push-in, pull-out diagram may occasionally be required.

B. DETAILS

1. If in the course of new construction existing utilities may be damaged provision shall be made for repair and restoration of such to the satisfaction of Resident Engineer.

2. All new utility work shall be distinguished from the existing.

3. Where there is an increase in occupancy requiring additional utilities services the quantities shall be given, i.e., additional electrical demand, add. water demand, add. sanitary sewer discharge load, and add. storm water volume.

4. All utility appurtenance shall be designed to withstand the load of biggest aircraft of vehicle anticipated.

5. Paving of common or P.A. taxiways or aprons shall conform to latest P.A. standards. Paving within the tenant's lease lines shall be according to engineering practice except erosion pavement shall be required where a blast from the aircraft may blow debris on adjacent property. (See P. 6.4)

6. Where heavier aircraft or other vehicles have been introduced, underground utilities shall be checked to insure that the added load will not cause any damage.

7. Requirement for pipe encasement shall be studied. (See p. 6.3)

8. Surface drainage of aprons require special treatment. Follow NFPA #415.

9. Drainage pipes shall be properly supported, Standards #041.001 and 043.001.

10. All efluent from floor drain in hangars, garages and all other locations contributing pollutents shall be processed by means of settling basins, filters and/or oil separator before discharging into the sewer.

11. All structures as high light poles, sign posts or blast fence shall be checked for adequate design.

12. Whenever the city sewer, inside the P.A. Facility boundary, is in any way affected by tenants' new work, that item of work will have to be coordinated with the appropriate City Department through designated liaison person in the Chief Engineer's office.

13. Whenever the new tenant's sewer connection will have to be made to the City sewer outside P.A. Facility, the Tenant will be required to make the application to the appropriate City Department directly. However, evidence of City's approval will have to be presented to P.A. prior to start of installation.

14. Any utility work affecting PA system shall be coordinated with the appropriate design section.

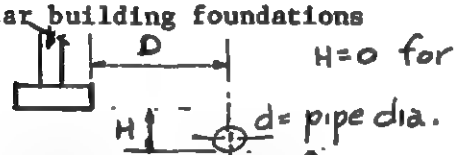
15. Whenever, for purposes of connection of new utilities, existing utility service will be interrupted proper authorities at the facility will have to be notified ahead of time.

REQUIREMENTS FOR PROTECTION OF STEEL OR CAST IRON UNDERGROUND PIPE

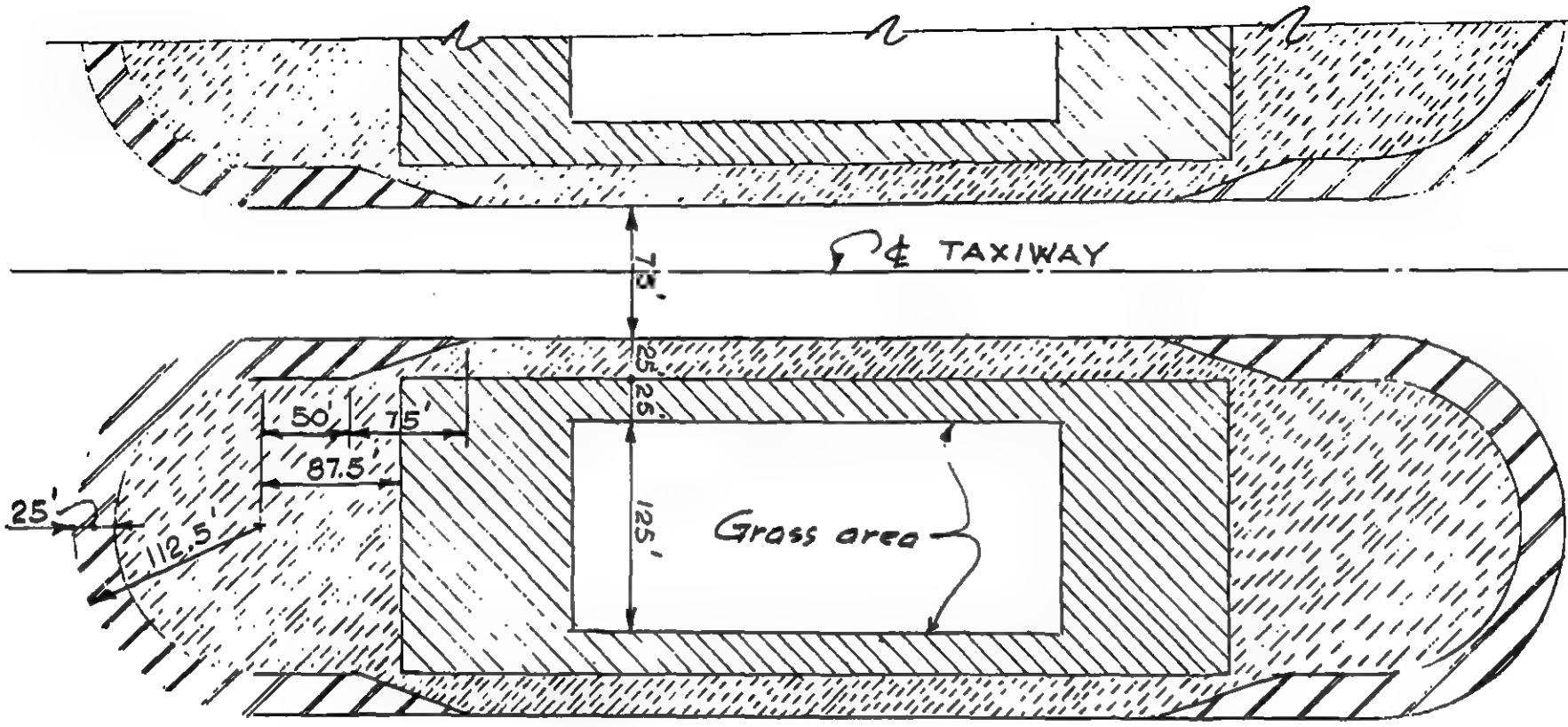
REM - RELOCATION OR ENCASEMENT MANDATORY
STS - SUBJECT TO STUDY
NER - NO ENCASEMENT REQUIRED

R - RELOCATE
E - ENCASEMENT REQUIRED

		NEW	EXISTING
1.	Railroads	REM	STS REM
2.	Highways - Terminal Building frontage fits in this category	REM	REM
3.	Local Streets	NER	NER
4.	Under Buildings		
	a. Spread footings	R	R
	b. Piles - Framed slab		
	(1) Pipe < 12" dia.	REM	R
	(2) > 12" dia.	REM	STS
	c. Piles - Slab on grade		
	(1) L.L. > 200 PSF		
	(a) Pipe > 12" dia.	R	R
	(b) Pipe < 12" dia.	STS	STS (R or E)
	(2) L.L. < 200 PSF		
	(a) Pipe > 12" dia.	STS	STS (E)
	(b) Pipe < 12" dia.	NER	NER
	d. Floor tied	STS	STS
5.	Near building foundations		
	a. Where $D > 2H + 2d^2$	NER	NER
	b. Where $D < 2H + 2d^2$		
	(1) Spread footings	R	R
	(2) Piles		
	d > 12" dia.	E	E
	d < 12" dia.	REM	REM
6.	747 Loading		
	a. Runways	REM	REM
	b. Taxiways		
	(1) PAF	REM	REM
	(2) Local	REM	REM
	c. Taxiway Stubs	STS	STS
	d. Aprons		
	(1) Poor Pavement (< 13" CONCRETE, < 28" FLEX. PVMT.)	STS	STS
	(2) Good cover	NER	NER
	(3) Less than 6' cover	STS	STS
	e. Gate positions	REM	REM



H=0 for pile fdn.



HEAVY SHOULDER - (4" AC, 10" Plant Mix, 10" Dense Graded Agg. Base Course)

NORMAL SHOULDER & HEAVY EROSION (3" AC, 4" Plant Mix, 6" D.G. A.B.C.)

LIGHT EROSION (2" AC, 4" Plant Mix, 6" D.G.A.B.C.)

ADDITIONAL TAXIWAY PAVING

BASIC GUIDE FOR

PROTECTION FROM POTENTIAL FUEL SPILLAGE POINTS

(See accompanying sketch)

A. TERMINAL BUILDINGS, SATELLITES, FINGERS, ETC.

1. Building Code requirements shall serve as minimum design criteria.

   Exterior separations shall be measured from a potential fire geometry with a radius of 25' in plan (as observed from NAFEC tests) around points of potential fuel spillage, such as fueling hydrants, fuel tank fill connections, vent openings, catch basins, etc.

   NFPA standards and PANY/NJ criteria shall control protection from operational hazards not covered by Codes.

2. NFPA 407-75, Aircraft Fuel Servicing, Sections 2-11.2 and 5-12.3, limit the proximity of vent and fill points from air intake points on the building, and that of fueling cabinets and pits from the building, respectively.

3. NFPA 415-77, Aircraft Fueling Ramp Drainage, Section 2-1.1 limits proximity of drainage points from structures.

4. NFPA 416-75, Airport Terminal Buildings, Section 204 requires special provisions for below-grade areas to be protected against fuel and vapor penetration.

   Section 220 defines distance and protection of heating and ventilation openings on the building from points of potential fuel or vapor release.

   Section 232 requires exit doors, discharging onto ramp, be marked "EMERGENCY EXIT ONLY".

   Section 271 requires protection of window glass when potential fuel spill points are within 100'.

5. Doors from exit stairs or passageways opening onto apron within 85 feet of potential points of fuel spillage must be protected from these points by a full height radiation barrier.

B. FIXED LOADING WALKWAYS

1. Fixed loading bridges shall be designed as part of the terminal building; See Category A above.

C. ARTICULATING LOADING WALKWAYS

1. Design shall comply with NFPA 417-~~78~~ 77, Aircraft Loading Walkways. The Engineer-of-Record shall certify compliance, in writing, and submit the test reports as defined in NFPA 417 to demonstrate said compliance; or at the option of the Engineer-of-Record the walkway can be protected by the use of a fire protective coating. This coating shall be designed to sufficiently insulate the walkway against the effects, on both the structural system and the interior environment, of a fuel fire for a five minute duration. If this option is exercised then the following recommendation shall be considered:

   a) Fire temperature of 2,300°F and exposure to fire for five (5) minutes shall not raise the temperature of the principal structure parts above a level beyond which the structural properties of the material is adversely affected. In the case of steel the temperature shall not rise above 1000°F, and preferably not above 750°F.

   b) The structural columns, as principal structural parts, shall also be designed with capability to endure the fire test.

   c) Fire temperature of 1800°F and exposure to fire for five (5) minutes shall not raise the temperature of any exposed interior surface above 248°F.

   d) Maximum smoke developed rating shall be 25 and propagation of products of decomposition or combustion more toxic than those from wood or paper shall be prohibited.

   e) It is recommended that loading bridges be designed such that there be no sudden failure (collapse, explosion or development of excessive smoke and gases) during the ten (10) minute test.

2. Walkways shall be designed as exitways complying with Building Code requirements for maximum travel length (150'); minimum width of 44" or the width of the aircraft door being served, whichever is larger; handrails; maximum slope (1 in 12); non-slip floor; emergency lighting.

3. Door at terminal end shall be provided with panic hardware (NFPA), shall be 1½ hour rated, and shall not be less than 44" or the number of units required for the walkway, whichever is larger. Door opening onto the walkway shall have an electrical interlock to prevent opening until the walkway is engaged to the plane.

4. Integrity of closure curtain against smoke ingestion through cracks and openings shall be established.

5. Windows shall not be allowed, except the minimum required by operator, protected by wired glass or automatic fire shutter.

6. The electrical installation shall comply with the National Electrical Code, particularly with Hazard Requirement, i.e., presence of flammable vapors from aircraft fueling, venting and storage points.

7. The hydraulic and electrical system for the bridge shall be demonstrated to be fail safe.

8. Light diffusers of plastic material shall be of approved type for exits, or wired glass shall be used.

9. Adequate details of sprinkler protection (in lieu of fireproofing) have not been established.

10. Aircraft loading walkway shall not be located over any drainage outlets. NFPA 415, Section 2-1.4.

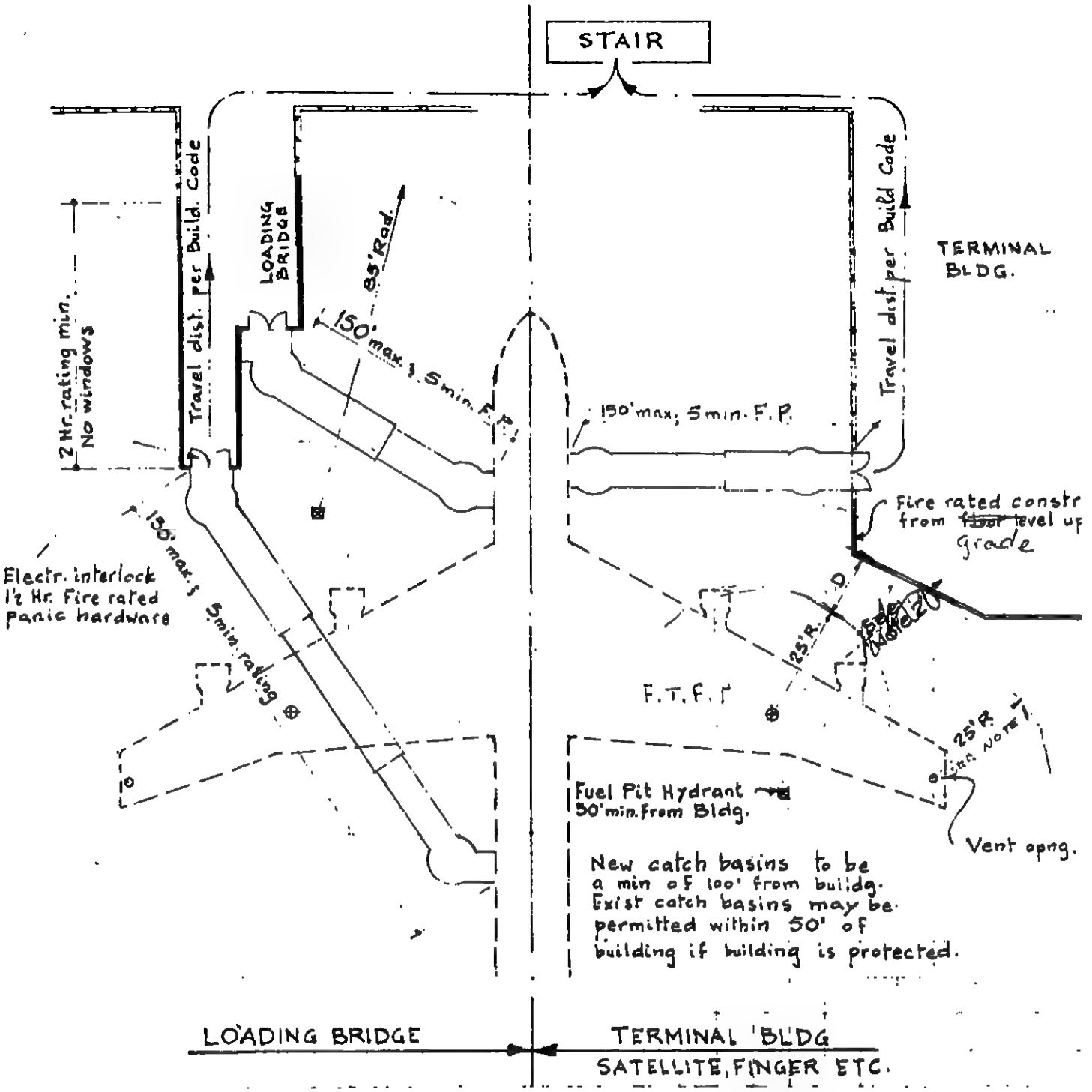
11. Structural Requirements:

    Wind: Stowed Position - 30 psf
    Operating - 15 psf

    Live load: Floor - 40
    Roof - 25 65 total minimum

    Check for excessive deflection

    Design must be based on a recognized code and calculations prepared by a licensed Engineer submitted for review.



Notes:

1. POTENTIAL FIRE GEOMETRY (as interpolated from NAFEC tests) - 25' radius from point of potential fuel spillage, such as fueling hydrants, fuel tank fill connections, vent openings (NFPA 416-281).

2. Exterior walls, and openings therein, shall have rating and protection as per Table 3-4 of N.Y.C. Building Code or Table 214 of BOCA for N.J.
It is strongly recommended that all walls have a minimum of 3' high spandrel fire barrier.

3. Radiation barriers shall be provided at all exit openings within 85 ft. of PPFS

ELECTRICAL

A. PLANS, NOTES, SCHEDULES

1. There shall be a note stating that all work conforms to the National Electrical Code and the local electrical code, if any. Identify specific Article of the NEC, if applicable to the proposed installation.

2. Responsibility for design shall not be delegated to the contractor. All information shall be provided on the plans or in the specifications.

3. A complete schedule of symbols used on drawings shall be given.

4. Review shall extend to existing Code violations.

B. ITEMS TO BE REVIEWED

5 KV Power

1. Power source, routing and feeder designations.

2. Size and type of feeder and conduit used.

3. KVA rating, type and voltages of all transformers.

4. Complete one-line diagram showing all primary connections, switching and interlocks.

5. Transformers installed in pairs with two line switches normally closed and the tie normally open.

6. Detailed drawings for all types of 5 KV splices used in the installation and cable cuts.

7. Complete coverage of 5 KV installation in the specifications.

8. The appropriate electrical design section shall be consulted for any additional power requirements, assignment of 5 KV feeders, installation of new 5 KV transformers and feasibility of primary connections to PANY/NJ feeders.

Power (480/277 and 208/120 V.)

1. Complete one-line diagram with all feeders, panels and other components fully identified.

2. In an existing building - an existing one-line diagram and the modification thereof by the new installation.

3. Location of all major power components identified on plans.

4. Feeders to have ample current carrying capacity for the load for which they are intended.

5. Circuit breakers or fuses suitable to protect feeders they are supposed to protect.

6. Panel schedules for all power panels.

7. Location and complete identification of all motors and motor control centers.

8. All disconnecting means to conform to code requirements, including ability to interrupt the available short circuit current.

9. Tabulation of all existing and new connected and demand loads to determine adequacy of service feeders.

10. Overcurrent protective devices for transformers, panels, motors, etc. to conform to code requirements.

Lighting

1. All fixtures UL listed and all types plainly indicated on drawings.

2. All fixtures suitable for the purpose for which they are intended at locations shown on drawings.

3. All fixtures completely wired.

4. Panel schedules for all lighting panels.

5. Exit lights and emergency lights on separate emergency circuits.

6. Exit signs to conform to the latest code requirements.

Fire Alarm, ~~Sprinklers~~ and ~~Other~~ Supervisory ~~Indications~~ systems

1. Complete F.A. riser diagram showing locations of all stations, gongs, control panel and wiring, shall be shown.

2. In an existing building - the existing F.A. riser diagram and the extent of modification by the new installation shall be clarified

3. Riser diagram for sprinkler supervisory system shall be shown

4. Supervisory system indications of trouble for fire alarm system, sprinkler control valves, post indicator valves, and indications for other protective systems shall be transmitted to a central station, and via leased telephone lines if remote. Code designations for signals shall be obtained from the Resident Engineer or Manager of the PANY/NJ facility.

5. Baggage conveyors passing through fire-rated walls, ceiling or floor shall have opening protectives meeting building code and/or Port Authority requirements.

   Where an opening protective is required it shall be integrated with any or combination of the following installation components in order to fulfill its purpose: ~~heat and~~ smoke detection and alarm system, leading edge or electric-eye installation, ~~flexible limit~~, ordinary closed sprinkler(s) in shrouded entrance at fire door, and auxiliary power for conveyor operation. Under all conveyor operating conditions including power outage, in the event of a fire, the opening protective shall be capable of properly closing without interference from baggage on the conveyor passing through the opening.

6. Fire detection and fire extinguishing systems shall be automatic and connected to an approved fire alarm and supervisory system. Fire alarm signals shall be transmitted to the Port Authority Proprietary Station. Local and central station signals, except at J.F.K. International Airport and LaGuardia Airport, shall also be transmitted to the P.A. station. Large banks of concealed conveyors, and high hazard areas (e.g. - paint spray rooms) shall have fire detection and alarm signaling by zones in order to readily locate the affected area.

7. Plot plan, all pertinent details and specifications for the F.A. equipment, cable, installation procedures, pedestals, boxes, handholes, etc., all conforming to Fire Department requirements. ~~(Also see Section #2 of this Manual).~~

Criteria for Interior Fire Alarm Systems

1. One F.A. station in each story at all natural paths of egress to the street.

2. Additional stations required to limit the travel distance to 150 ft. (group I constructions).

3. Stations must be readily accessible and unobstructed.

4. Large open areas: At least one F.A. station per 10,000 square feet, however, all other conditions must be met.

5. In general, locate F.A. stations at stairwells near elevators, and at points of egress from building (natural path of exit).

6. Sounding Devices:

   a. Shall be of sufficient number to be clearly audible to all occupants.

   b. 10" single stroke gong on interior columns.

   c. One gong per 200,000 square feet or closer if audibility is limited by walls or environmental sound conditions.

7. F.A. Signals:

   All fire alarm station signals shall be transmitted to the P.A. central station via leased telephone lines. (Police Emergency Garage or other designated location).

8. Aircraft Loading Bridges:

   Provide an interior manual fire alarm station and gong in the Terminal Building or Satellite, as the case may be, at the building connection of the articulating or fixed bridge.

   If egress stair(s) is provided from a fixed bridge, provide a manual fire alarm station and gong at this location in lieu of the installation indicated above.

Telephone

1. Telephone installation shall be a completely separate system. No part of a telephone installation can have common components with power or lighting installation.

   The system usually consists of empty conduits, boxes, and terminal cabinets. Wires are installed by the Telephone Company.

Metering

1. All Tenants, regardless of size, including Tenants in IAB, shall have their power consumption metered.

Miscellaneous

1. If work is performed by a Tenant in any electrical manhole, the Tenant's specifications should contain the standard "Airport Record Drawings" clause, used in specifications for P.A. contracts, requiring submittal of exploded view drawings of the manhole to the Resident Engineer.

2. Electrical work done by the Tenants shall also be compatible with certain P.A. design standards. It may occasionally become necessary to supply a Tenant with copies of these standards, to be used by him, provided all references to the Port Authority are deleted. (e.g.: manholes, handholes, frames and covers, fire alarm pedestals, aircraft grounding receptacles, substation one-line diagram, 5 KV cable splices, etc.).

3. Emergency power for exit lights, stairway lights, certain other strategically located lights, fire alarm panels, sprinkler alarm valves, heat and smoke detection and alarm systems, certain related fire and smoke control systems, and supervisory indications for all protective systems shall be supplied by the Tenant.

   In general, the emergency power should consist of an independent power source (diesel-generator or rechargeable storage batteries) capable of feeding essential services in case of failure of the normal power supply. As a minimum, the Tenant shall comply with applicable provisions of Article 700 of the National Electrical Code and, if located within New York City, with Article 32 and its Amendments of the Electrical Code of the City of New York.

MECHANICAL

A. PLANS AND NOTES

1. Each plan shall contain the registration number, seal and signature and address of the Architect or Engineer who prepared the plans. (C26-110.2).

2. A complete schedule of symbols and abbreviations used on the drawings shall be given.

3. Responsibility for design or code interpretation shall not be delegated to the contractor. All such information shall be provided on the plans or in the specifications.

4. The review will extend to existing code violations.

5. The design shall comply with the ventilation and heating standards of the Building Code and Labor Laws, and the Energy Conservation Code where applicable.

6. Cooking facilities, fuel burning and fuel storage equipment, waste disposal systems, spraying or dip finishing or other industrial-type operations, and occupancy by or repair of fuel burning vehicles will be reviewed for compliance with the following, where applicable.

    a. Building Code and Reference Standards
    b. Local Fire Prevention Codes
    c. NFPA Standards (National Fire Codes)
    d. Rules of Board of Standards & Appeals
    e. N.Y.C. Electrical Code and National Electrical Code (NFPA 70)
    f. State Labor Law
    g. Technical requirements of the Air Pollution Control Codes of the City and State
    h. List of Accepted Combustion Equipment (NYC Dept. of Air Resources)
    i. List of Acceptable Materials and Equipment (NYC Dept. of Buildings)
    j. Factory Insurance Association "Recommended Practice for Combustion Safeguards" (for gas fuel safety piping).

7. The construction and use of passenger loading walkways shall comply with NFPA No. 417 and PANY/NJ Criteria for air supply, prevention of smoke ingestion, and electrical interlocks. (Also see Section No. 7 of this Manual).

8. The Mechanical Review shall extend to all mechanical equipment of buildings and the mechanical features or requirements of all stationary equipment, including the following:

    a. Elevators, escalators, moving walks (USASI 17.1, 1965)
    b. Dumbwaiters, conveyors, cargo handling and related equipment (USASI A113.1, USASI B20.1 1957)
    c. Exterior fuel-burning equipment (snow melting, etc)
    d. Utility plants
    e. Refrigeration Plants and Cooling Towers
    f. Pressure vessels, fired and unfired
    g. Pumping and compressing equipment
    h. Bulk storage for liquids or gases (tanks, supports, anchorage, clearances, electrical grounding, Fire Dept. regulations if flammable)
    i. Handling of gases or fluids which are volatile, flammable, toxic, corrosive, or potential pollutants
    j. Vibration or noise-producing equipment
    k. Acoustic and thermal insulation for mechanical systems
    l. Area ventilation for cooling of electrical transformers
    m. Waste treatment equipment

9. Work affecting the PANY/NJ Central Heating and Refrigerating Systems, including piping and metering, shall be coordinated with the Chief Mechanical Engineer.

10. Chief Mechanical Engineer must be informed of additional load requirements for PANY/NJ central heating or refrigeration services.

11. Site work affecting paving and utilities shall be coordinated with the Civil Reviewer.

12. Site work affecting the fuel lines shall be coordinated with the Fueling Engineer.

13. Systems connected to PANY/NJ Central Heating and Refrigeration Systems must comply with P.A. "Outline Specification Requirements for Tenant Premises" including underground piping, conduits, and meters. Appurtenances must be selected for maintenance compatibility with existing PA equipment.

14. Special attention should be directed to the following items which frequently generate comments:

    a. Shaft requirements for air ducts
    b. Fire dampers at ducts through rated partitions and floors
    c. Installation details for fire dampers to stay in place if duct is disrupted. (see SMACNA Fire Damper Guide)
    d. Smoke detectors and smoke/fire dampers at ducts entering "Safe Area", exit passageways and lobbies.
    e. Fire detector and smoke detector requirements for fan systems, to shut system automatically and transmit signal.
    f. Fire resistive insulation materials
    g. Restaurant Kitchens and Flight Kitchens: Grease ducts, insulation, fixed pipe fire extinguishing systems in hoods and ducts.
    h. Air filters in ventilating systems to be Class 1 only.

PLUMBING

A. PLANS, NOTES, SCHEDULES

Plans

1. Each plan shall contain the registration number, seal, signature and address of Architect or Engineer who prepared the plans.

2. Complete piping layouts and riser diagrams shall be shown with fixture unit counts for sanitary and water; square foot area handled for storm drainage.

3. Metering arrangement must be shown where applicable.

4. Details of special or unusual connection shall be shown.

Notes

1. Indicate the applicable codes. (City, State, National)

2. Material specification shall be given.

3. If alteration to an existing structure, provisions for repair of damaged existing installation must be made.

Schedules

1. Complete list and description of fixtures and equipment must be provided.

2. Complete list of symbols and abbreviations used shall be given.

B. CHECKLIST

The following is a checklist of the more significant items with which the review will be concerned, but not limited to:

Sanitary

Minimum size of house sewer
Directional flow connection to sewer
House trap and pit
Size of F.A. inlet
One 3" minimum size stack

Washout pattern vents (N.J. State Code)
Grease traps; required, hook-up, flow control
Sanitary House Drain location and sizing
Cleanout at base
Cleanout on house drain
Vent code sizing
Expansion joints
Accessibility of back water valve
Ejector piping hook-up
Type of XHCI Joints
Fixtures compliance of Codes (i.e., elongated, open front)
Test requirements

Storm Drainage

Directional flow connection to sewer
Minimum size of house sewer
Leader size to agree with code
Storm house drain location and size in conformance with code
Cleanout at base of leader
Cleanout on house drain
Expansion joints
Test requirements

Oil Separator

Overall separator size
F.A. inlet
Relief vent & height
One 3" minimum size stack
Cleanouts
Hangar building run-off VS. Deluge sprinkler

Domestic Cold & Hot Water

Size of service
Gooseneck at street main
Curb box and valve
Pressure reduction valve
Meter hook-up & setting
Type of meter
Branch valves
Air chambers
Fixture roughing, trim, flow controls
Expansion joints
Hot water heater hook-up
Hot water heater PRV & TRV
Hot water circulation
Plugged outlets
Submerged inlets - vacuum breaker accessibility
U.S. Public Health Service Requirements
Hot water circulation requirement

Triturator room water requirement (NYIA - Queens Water Dept.)
Dual service limitation
Hanger spread
Piping materials - pipe, joints, lining, etc.
Street water service connection
Insulation conformance with code
Test
Hose Bibbs, flushing hydrants

Fire Standpipe

Separate service
Curb valve & box location
Meter (if required)
Number of siamese & street facing
Siamese Fire Dept. Connection Size
Size of cross connection
Riser size
Branch size
P.R.V.
Roof manifolds
Roof manifolds with valve with ball drip
Insulation
Hose lengths for full coverage
Hose size - check building classification and occupancy
Ladders for high valves
Riser control valves - supervision or chain-lached
Auto. ball drips
Riser diagram
Sign at siamese
Fireline fittings
Fire line valves
Hanger rod size
Galvanized pipe (Newark)
Hazardous area insulation
300# test

Gas

Type of service (L.P., M.P.)
Service sleeve
Minimum size piping
Piping sizing
Pressure Red. hook-up
Gas meter location
Underground pipe "Mill Wrapping"
Galvanized malleable pattern fittings
Underground mill wrap protection
Test

Gasoline

Size, location, capacity material of tanks
Depth below surface
Distance between tanks
Height of tank vents
Size of vents
Suction encasement
Tank encasement
Location of fill box
Pipe, fittings, joints
Filler box
Foot valve or angle check extrator
Flame arrestor vent caps
Fill & vent "Marriage"
Piping arrangement for suction connection
Double swing joint connections
Tank buoyancy
Tank mat
Tank meter gauge
Code conform
Testing

FIRE PROTECTION

1. "Fire Protection" is an integral part of several disciplines contained in all building codes, electrical codes, and fire protection codes. Fire protection specialties such as electrical power supply to fire alarm and signaling systems, fire detection circuits and extinguishing systems, and powered fire protection devices are covered in the electrical and building codes.

2. Fire related mechanical devices such as fire dampers, smoke and heat detectors are included in the mechanical sections of the building codes. Fire standpipe systems are included under Plumbing, Sect. 10 of this Manual.

3. Sprinkler systems and systems using dry chemical, foams, halogenated agents and other extinguishing agents must be submitted on drawings, signed and sealed by the Architect or Engineer of Record, even if prepared by specialty manufacturers or by recognized contractor-engineers.

4. Sprinkler plans must show or list the appropriate information and data specified in NFPA Standard 13, regarding the available water sources, supply pressure, number and type of sprinklers, fire department connections, hazard classification, alarm devices, supervisory connections; also hydraulic computations when required.

5. All types of extinguishing systems must conform to the applicable NFPA Standard for the system type and application, or to the governmental code if more stringent.

6. Before starting work on sprinkler systems, dry chemical, Halon, or other fixed pipe fire extinguishing systems, shop drawings shall be submitted to the P.A. Risk Management Division, and then filed with the P.A. Resident Engineer or Facility Manager. A statement to this effect must appear on the contract drawings.

7. In N.Y.C. the requirements for sprinklers are spelled out in the Building Code on the basis of space occupancy rather than the occupancy classification of a building. The spaces in which sprinkler are required are summarized in Table 17. (Code Section C26-1703.1).

    a. Regardless of occupancy classification, any story above grade and the first story below grade which cannot be ventilated, shall be sprinklered. Class E (buisiness) buildings are exempted from the above grade requirement, if B-2 storage areas exceeding 1,000 sq. ft. are sprinklered. (C26-1703.1(1)).

b. Smoke detector alarm systems are permitted in lieu of sprinklers in certain areas (C26-1703.2).

c. Conditions under which the domestic water supply may be used to supply required sprinklers are given in C26-1703.9.

d. Area and height limitations of various occupancies and building construction classes are considerably eased if fully sprinklered. Generally, a one (1) hour reduction of required fire rating of structural members is also indicated.

e. Other bonuses are also indicated in the Code for sprinklered buildings and spaces. Increased travel distances, reduction in class of interior finishes, increases in sizes of openings in fire divisions and separations, and penetration of floors by escalators are also indicated.

8. The Reference Standards for Article 17 contain provisions for the construction of standpipe systems, sprinkler systems (NFPA No. 13 with some modifications), and alarm and signaling systems actuated by manual interior alarm or signaling devices, or by operation of automatic fire or smoke detectors, standpipe, sprinkler, chemical, foam or other extinguishing systems.

SPECIAL USES AND OCCUPANCIES

1. The following is a list of some of the special uses and occupancies generally found at PANY/NJ facilities.

Hangars for Conventional Aircraft
Hangars for Large Aircraft (wing Areas of Aircraft in excess of 3,000 sq. ft.)
Industrial Shops and Factories
Automotive Repair Shops
Heliports
Industrial Kitchens
Public Parking Garages
Open Parking Structures
Engine Test Cells
Boiler and Furnance Rooms
Occupancies involving Spray or Dip Finishes or Cleaning Processes
Waste Treatment Plants
Bulk Storage of Liquid Petroleum Products
Liquified Petroleum Gas - Storage and Handling

Cargo Storage Buildings
Utility Plants
High Hazard Storage Buildings
Loading Docks and Storage under Canopies
Aircraft Simulator Rooms
Computer Rooms

2. Fire protection and special requirement for some of the above uses and occupancies are included in Article 7 of the Code to supplement the other applicable provisions of the Code. Additional requirements are included in the N.Y.S. Labor Laws. The Fire Prevention Laws, Chapter 19 of the Administrative Code, should also be consulted.

3. The NFPA Standards are also generally applied to most of the listed special uses and occupancies. The Fire Protection Engineer shall also be consulted in all cases involving fire protection systems for additional requirements.

4. For the State of New Jersey, under the Regulations of the N.J. Uniform Construction Code, the requirements for "Fire Suppression Systems" (standpipe, sprinkler, foam chemical, etc.) are specified in Article 12 of the BOCA Basic Building Code. Fire alarm, signaling and supervisory installations are also covered in BOCA Article 12.

MATERIALS, OPERATIONS AND EQUIPMENT

SUBJECT TO INSPECTION REQUIRED BY BUILDING CODE

The purpose of this section is to list some of the materials, operations and equipment which normally require the services of a licensed professional engineer in order to assure code compliance in conjunction with normal inspection procedures contained in Subarticles 106.0 and 107.0 of the N.Y.C. Building Code and Subchapter 2, sec. 5:22-2.6 of the New Jersey Uniform Construction Code.

MATERIALS

Concrete

Materials for all structural elements proportioned on the basis of calculated stresses 70 percent or greater, of the basic allowable values. Inspection includes making of preliminary tests for concrete and quality control and inspection at the batch plant.

Notes:

a. For general provisions relating to inspection see building code section and reference standards.

b. All structural materials subject to controlled inspection shall be tested and/or inspected at the place of manufacture and evidence of compliance shall be provided.

c. Mill, manufacturer's, suppliers' inspection and test reports will be accepted as evidence of compliance with the provisions of the code for all structural materials and assemblies not subject to controlled inspection.

OPERATIONS AND METHODS OF CONSTRUCTION

Steel

1. Welding operations and the tensioning of high strength bolts in connections where the calculated stresses in the welds or bolts are 50 percent or more of basic allowable values.

2. Inspection of the connection of fittings to wire cables, except where proof-loading to not less than 55 percent of ultimate capacity.

Concrete

1. Actual preparation of cylinders for strength tests.

2. The checking of all samples recovered for the purpose of strength tests for slump, admixtures, air content, unit weight, and temperature.

3. The checking of sizes and position of reinforcement.

4. The inspection of placement of concrete and maintenance of records and verification for:

    a. Temperatures
    b. Protections against excessive temperatures
    c. Curing
    d. Erection and connection of precast members
    e. Amount of water added in the field
    f. Tensioning of all prestressed elements
    g. Preplaced aggregate

5. Inspection for proper use of admixtures. Batch plant inspection required for all admixtures, other than air-entraining and water-reducing agents.

Aluminum

Inspection of welding operations where stresses in welds are 50% or more of basic allowable values.

Wood

Inspection of the fabrication of glued-laminated assemblies and of plywood components.

Reinforced Masonry

1. Fabrication of prefabricated units.

2. Placement and bedding of units; sizes of members, including thickness of walls and wythes; sizes of columns; the size and position of reinforcement, in place, and provisions for curing and protection against freezing for all reinforced masonry construction.

Unreinforced Masonry

Placement and bedding of units and sizes of members including thickness of walls and wythes; sizes of columns; and provisions for curing and protection against freezing for all masonry construction proportioned on the basis of structural analysis as described in the reference standard.

Soils and Foundations

1. Controlled Fills
2. Boring Operations
3. Piling; Installation and Testing
4. Subgrade for Footings, Foundation Piers and Walls
5. Support of Adjacent Properties or Building

Firestopping

Installation of all firestopping where required.

Fireproofing

All fireproofing other than the concrete encasement.

Notes:

a. For general provisions relating to inspection see appropriate building code sections and reference standard.

b. All construction operations designated for controlled inspection shall be inspected by the architect or engineer designated for controlled inspection during the performance of such operation.

c. Certification by the fabricator or erector, as applicable, will be accepted as evidence of compliance with the provisions of this code for all construction operations not subject to controlled inspection.

EQUIPMENT

Required ventilating systems including functioning of any required smoke detection and fire protection devices.
Refrigerating Systems
Boilers
Fuel Burning Equipment
Chimney Smoke Test (where applicable)
* Fire Standpipe System
* Fire Pumps
* Fire Alarm & Signaling System Electrical Test

- Sprinkler System
* Voluntary Ventilating System with required Smoke Detection and Fire Protection Devices
* Soil Percolation Test
* Plumbing and Gas Piping System

(* The test of this item shall be witnessed by a facility representative).

Notes:

a. For general provisions relating to inspection see appropriate building code sections and reference standard.

b. All equipment testing designated for controlled inspection shall be inspected by the architect or engineer designated for controlled inspection during the performance of such operation.

c. Certification by the manufacturer of equipment, as applicable, will be accepted as evidence of compliance with the provisions of this code for all equipment not subject to controlled inspection.

CHECKLIST OF ITEMS SUBJECT TO CONTROLLED INSPECTION

Only major construction items are listed here and therefore the controlled inspection shall not be limited to these items only.

1. Borings or Test Pits
2. Piles
3. Soil
4. Controlled Fill
5. Underpinning
6. Welding
7. Aluminum
8. Laminated Wood
9. High Strength Bolts
10. Fire Stops
11. Heating System
12. Ventilation System
13. Refrigeration System
14. High Pressure System
15. Prestressed Concrete
16. Precast Concrete
17. Chimney Smoke Vent
18. Cable Fittings
19. Spray-on Fireproofing.

APPENDIX

For Port Authority use only	
FACILITY	APP. NO.
DATE / /	APPLICANTS NAM

TENANT/PROJECT

This form shall be completed and submitted with all Tenant Construction or Alteration Applications

BUILDING CHARACTERISTICS

INDICATE ITEMS APPLICABLE TO THIS APPLICATION ONLY

LOCATION OF PROPOSED WORK _____

CLASSIFICATION OF BUILDING

APPLICABLE BUILDING CODE AND EFFECTIVE DATE _____

OCCUPANCY GROUP _____ TYPE OF FOUNDATION _____

CONSTRUCTION CLASS _____ BEARING MATERIAL _____

NEW BUILDING - YES _____ NO _____ BASIC BUILDING FRAME MATERIAL _____

ALTERATION - YES _____ NO _____ NUMBER OF STORIES _____

SPRINKLERED BUILDING - YES _____ NO _____ BASEMENT - YES _____ NO _____

FLOOR AREA AT GRADE _____ CELLAR - YES _____ NO _____

TOTAL FLOOR AREA _____ BUILDING HEIGHT _____ FUTURE HEIGHT _____

Indicate any of the following that will be new and/or altered

	NEW	ALT		NEW
STANDPIPE SYSTEM			AUTOMATIC SPRINKLER SYSTEM	
YARD HYDRANT LOOP SYSTEM			TWO AUTOMATIC SOURCES	
SMOKE DETECTORS			ONE AUTOMATIC SOURCE	
PROPRIETARY ALARM SYSTEM			SIAMESE CONNECTIONS	
MUNICIPAL FIRE ALARM SYSTEM			DOMESTIC WATER SUPPLY SOURCE	
HAND OR PORTABLE FIRE EXTINGUISHERS			AUTOMATIC DRY SPRINKLER SYSTEM	
RESTAURANT EXHAUST SYSTEM EXTINGUISHER			PARTIAL SPRINKLER SYSTEM	

INDICATE ALTERNATIVE TO ABOVE _____

INDICATE EXTINGUISHING AGENT IF OTHER THAN WATER _____

INDICATE EXTENT OF PARTIAL SYSTEM, IF ANY _____

OCCUPANCY DATA

STORY	ROOM OR AREA *	LIVE LOAD LBS PER SQ. FT.	OCCUPANCY GROUP	MAXIMUM NO. OF PERSONS	INTERIOR FINISH CLA

* For Alteration Application, complete for those areas affected by alteration only.

SCOPE OF CONSTRUCTION OR ALTERATION WORK

Indicate below the plans and supplementary material that will be submitted with this application. All such plans should be completed and of sufficient clarity to indicate the entire nature and extent of the proposed construction work and its compliance with the provision of the local build code and other applicable laws and requirements. Composite plans may be submitted provided that a clear understanding of each part is not impaired.

BUILDING PLANS	Check	SITE PLANS	Check
Architectural		Paving	
Foundation		Drainage System	
Structural		Sanitary System	
Plumbing		Utilities	
Electrical		Domestic Water	
Proprietary Fire Alarm System		Gas	
Fire Detection System		Electricity	
Mechanical		Telephone	
Ventilation and Air Conditioning System		Hot and/or Chilled PANY/NJ Water	
Fuel Burning & Fuel Storage Equipment		Yard Fire Hydrant & Fire Protection Loop System	
Heating System		Municipal Fire Alarm System	
Other (Specify)		Aircraft Hydrant Fueling System	
Fire Protection		Other (Specify)	
Standpipe System			
Sprinkler System		SUPPLEMENTARY MATERIAL	
Other (Specify)			
Elevators, Escalators, Moving Walks or Dumbwaiters		CALCULATIONS (Specify)	
Baggage Conveyors			
Aircraft Loading Bridges			
Kitchen Equipment		OTHERS (Specify)	
Others (Specify)			
CONSTRUCTION STAGING PLANS			

For Port Authority use only	
FACILITY	APP. NO.
DATE / /	APPLICANTS NAME

information, (where applicable), shall be submitted with all Tenant Construction or eration Applications - either on the form below or on the project drawings.

LINE SPECIFICATION FOR BUILDING CODE REQUIREMENTS (attach supplementary sheets if required)

Occupancy Classification of Building _____ Fire Index _____

Occupancy Classification of Spaces

Space	Occupancy Classification	Fire Index

Fire Divisions

	OCCUPANCY GROUP	HOURLY RATING
A. List Occupancy Groups requiring separation by Fire Divisions and the hourly fire resistive rating		

MATERIALS

B. Describe materials and/or assemblies to be used, or indicate the Reference Standard Design No. B.S. & A. No.

Fire Separations

	OCCUPANCY GROUP	HOURLY RATING
A. List Occupancy Groups requiring separation by Fire Separations and the hourly fire resistive rating.		

MATERIALS

B. Describe materials and/or assemblies to be used, or indicate the Reference Standard Design No. or the B.S. & A. No.

8. Egress Information

A. Indicate exit facilities including capacity and number required for both new construction and changes in occupancy.

Exit Door Opening _____ Interior Stairs _____

Vertical Exits _____ Exterior Stairs _____

Exit Passengersways _____ Open Exterior Space _____

Hortizonal Exits _____ Safe Areas _____

Areas of Refuge _____ Others _____

B. Are one hour rated Public Corridors Required? Yes ____ No ____ (No. & Capacity _____

C. Indicate the maximum occupancy travel distance required and occupant load.

OCCUPANCY AND TRAVEL DISTANCE (FT)	NET FLOOR AREA PER OCCUPANT (SQ. FT.)

D. Indicate all occupancies exceeding the new floor area requirements and state the number of persons expected in each.

MATERIALS

9. List combustible materials used in construction under this application. Include floor coverings, decorations, and plastics.

MATERIALS

10. List materials installed under this application subject to CONTROLLED inspection and the certifications required.

MATERIALS

11. List materials installed under this application subject to SEMI-CONTROLLED inspection and the certifications required.

MATERIALS

12. List materials not approved by the local municipality, and foreign materials proposed to be installed under this application.

EQUIPMENT

13. Indicate proposed equipment that must comply with air pollution laws.

WASTE MATERIALS & QUANTITIES

14. List all waste materials and estimated quantities expected to be discharged to the storm and sanitary systems from the building or site area other than water and human wastes.

SERVICE INTERRUPTION & PERIOD

15. List existing utility services, if any, that may be interrupted and estimated length of time.

TEMPORARY BYPASS LOCATION

16. Indicate need and location, if any, for temporary bypass paving for either vehicular or aircraft traffic and estimated length of time.

DEWATERING & SHEETING

17. Indicate type and extent of sheeting and/or dewatering systems required, if any. Indicate pertinent system features.

BUILDING SUPPORT FEATURES

18. Indicate treatment of bearing soil supporting building, floor slabs, and utilities such as surcharging or special construction features needed to overcome excessive and/or differential settlement. Indicate features of proposed foundations.

SPECIAL SYSTEMS & METHODS

19. Indicate special systems or methods to be utilized in the course of construction or during occupancy of the building.

PROTRUSIONS

20. Indicate anticipated protrusions above the roof line such as chimney, elevator house, bulkheads, air conditioning equipment, etc.

Components		Test
min) Floor and wall sections	U.S. Testing Co.	LA 60919-3; LA 16956
Aircraft spacers (bumper)	Terralab Co.	12524
—"— closure	"	12214

1. GENERAL

1.1 The Pallet Buildup/Breakdown Station will serve two (2) functions in the Cargo System. The first function will provide a location for building up or breaking down of the pallet. This will be accomplished by raising or lowering the Pallet into a pit on the Scissors Lift and Powered Roller Deck Assembly.

2. SCISSORS LIFT

2.1 The Scissors Lift shall be constructed of heavy plate with structural reinforcement to provide minimum deflection at any level. The bushings shall be lifetime lubricated and operate on oversize hardened pins to give longer life.

2.2 The total lift capacity shall be such that it will handle the maximum pallet load plus the dead load of the power conveyor deck.

2.3 The lift shall be provided with safety locks for maintenance in the raised position. Toe guard safety shield shall be provided.

2.4 The lift shall include a motor pump reservoir system with built-in hydraulic overload relief to protect personnel and structure. The full upper travel shall be restricted by an electric limit switch and backed up by mechanical stops to prevent overtravel. Total vertical travel shall be no less than 60 inches.

2.5 An acceptable manufacturer of such type of lift is:

Southworth Inc.
30 Warren Avenue
Portland, Maine 04103

3. CONVEYOR DECK DESIGN

3.1 The conveyor frame shall be fabricated from structural steel of first quality. All required cross bracing shall be first quality structural steel.

THE PORT AUTHORITY OF NY & NJ Memorandum

Refer To	Date	Noted By	Date
Return To		File	

To: Mr. Myron K. Woller, Manager, NIA/Plant & Structures
From: James C. Ansley and Joseph Kelly
Date: July 15, 1980
Subject: TETERBORO AIRPORT - CRITERIA FOR TENANT STRUCTURAL DESIGN - ROOF SNOW LOAD AND BUILDING WIND LOAD - SAFAIR HANGAR
Reference: Memo: M. Woller to J. Ansley, dated 7/3/80

Copy To: Messrs. J. Dickerson, E. Fasullo, D. Montalbano, R.M. Monti, L. Schaefer; file.

At your request the attached background paper was prepared. The information presented therein was used to form an engineering evaluation and opinion of the minimum design loads for the subject building at Teterboro Airport; namely, snow load and wind load. The Engineering Department has concluded that the minimum snow load and wind load should be 30 and 20 psf, respectively, based on the history of the actual design practice at Teterboro Airport, the building code, and the latest technology on the subject. We will be available to meet with you, as needed, to discuss this issue and the procedures related thereto in greater depth if you require.

Joseph Kelly, P.E.
Chief Structural Engineer

James C. Ansley, P.E.
Supervising Engineer
Tenant Construction Review Unit

JA/JK:emm

PA 90A

TETERBORO AIRPORT
SAFAIR - GENERAL
HANGAR

—

DETERMINATION
OF
STRUCTURAL LOADING FOR ROOF SNOW LOAD
AND
WIND LOAD

July, 1980

1. APPLICABLE CODES

On January 1, 1977 the State of New Jersey adopted the Uniform Construction Code (UCC) which replaced all local codes throughout the state. At Teterboro Airport, the superseded codes were the Standard Building Code of New Jersey (Teterboro), the National Building Code (Moonachie & Little Terry) and BOCA (Hasbrouck Heights). Under the UCC, BOCA Basic Building Code was adopted as the "building subcode" with the latest revisions and admendments.

2. ACTUAL ROOF LOAD AND WIND LOAD USED TO DESIGN STRUCTURES BUILT AT TETERBORO AIRPORT SINCE PAN AM ASSUMED THE RESPONSIBILITY OF OPERATOR/DEVELOPER. (January 1, 1970).

Year			
1971	Hangar #118	30 psf	20 psf
	Hangar #119	30 psf	20 psf
	Hangar #120	30 psf	20 psf
	Hangar #121	30 psf	20 psf
	Hangar #114	30 psf	20 psf
1974	Building #15	30 psf	20 psf
1978	Hangar #113 (Falcon Jet)	30 psf	20 psf
1979	Hangar #111 (Pan Am)	30 psf	20 psf
1980	Atlantic Aviation	25 psf	20 psf
	Safair - General	25 psf	13 psf*

*with no increase in allowable stress

3. CODE REQUIREMENTS - TETERBORO AIRPORT

A. *Roof Snow Load (Flat or Low Pitch Simple Gable Roofs)*

1. Standard Building Code of New Jersey (Prior to 1977) - 30 psf
2. National Building Code----------(Prior to 1977) - 30 psf
3. BOCA----------(Prior to 1977) - 14.4 psf
4. UCC/BOCA 1978----------14.4 psf*

B. Wind Load for Buildings under 30' in height

1. Standard Building Code (Prior to 1977) - 15 psf
2. National Building Code (Prior to 1977) - 20 psf
3. BOCA----------(Prior to 1977) - 15 psf
4. UCC/BOCA 1978----------13 psf**

*For areas where records of snow fall or experience indicates that the ground snow loads...are inadequate, higher basic snow loads shall be used as approved by the building official.

**For suburban areas, towns, city outskirts, wooded areas and rolling terrain. However, BOCA requires higher wind loads to be used for structures located in flat, open country, open flat coastal belts, grassland...

4. ENGINEERING DEPARTMENT DESIGN CRITERIA:

A. Snow Load----------30 psf

B. Wind Load for Buildings under 30' in height---20 psf

For flat and open country.

5. BACKGROUND

A. Roof Snow Load

Prior to the enactment of the Uniform Construction Code (UCC) in the State of New Jersey, most local building codes in New Jersey required a minimum uniform roof

snow load of 30 or 40 pounds per square foot for flat or low pitch simple gable roofs. The Newark City Code required a 40 lb. snow load. The local codes for the four boroughs where Teterboro Airport is situated, required a 30 lb. snow load. In addition, Pan Am's master planning consultant, Tippetts Appett McCarthy & Stratton, set a criteria of a 30 lb. snow load and a 20 lb. wind load for the airport development work. As indicated above in Section 2, the design snow loading used at Teterboro Airport has generally been 30 psf throughout at least the last ten years - covering the period of Pan Am's operation.

The applicable provisions of BOCA for snow loading are attached as Appendix A. The method of establishing roof snow loading in BOCA was taken directly from the American National Standard Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, ANSI A58.1 - 1972. Attached as Appendix B is a recent article published in Civil Engineering discussing snow loading generally and, in particular, the proposed revisions of the ANSI Standard on snow load. These revisions to the national standard on snow loading are based on the latest research including the analysis of more weather station data over a longer period of time as compared to the former standard. This revised standard, when adopted, will form the basis of the BOCA snow loading requirements. The present draft of the revised ANSI Standard would require a snow load over the hangar area, for example, of 37 or 40 psf, depending on the heating design or thermal conditions of the hangar area.

The Uniform Construction Code of the State of New Jersey (Chapter 23, Title 5 New Jersey Administrative Code) in subchapter 4 enpowers the Port Authority, as an interstate agency, to administer and enforce the code/subcodes. Under the Port Authority Administrative Instructions, the Engineering Department has been delegated the responsibility for administering the subcode/code.

Based on all the above information, a 30 pound per square foot load is the minimum required snow load for the subject building.

B. Wind Load

Prior to January 1st, 1977, when the New Jersey Uniform Construction Code was made effective, the design wind load for buildings in New Jersey up to 30 feet in height was generally either 15 or 20 pounds per square foot, depending on which code applied. As indicated above in Section 2, the design wind load used at Teterboro Airport has been 20 pounds per square foot for at least the last ten years - again covering the period of Pan Am's operations. Pan Am's consultant, Tippetts Appett McCarthy & Stratton, also set a wind load criteria of 20 psf for the airport development. The current design specifications of the Metal Building Manufacturers Association (MBMA), which the steel fabricator for the subject building normally also conforms to, requires a 20 psf wind load for the Teterboro Airport area.

The applicable provisions of BOCA for wind loading are attached as Appendix C. The method of defining the wind loading in BOCA was again taken directly from the American National Standard Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, ANSI A58.1 - 1972. The wind load tables in BOCA are for exposure B, for geographic locations such as suburban areas, town, city outskirts, wooded areas and rolling terrain - if applicable. However, BOCA requires increased loads for exposure C or D or decreased loads for exposure A; presumably referring you to BOCA's reference standards and the building official administering the code. Specifically, BOCA requires increased wind loads for structures located in flat, open country, open flat coastal belts, grassland, or unusually exposed locations adjacent to bodies of water. In addition the National Standard - ANSI A58.1, is being revised, where among other factors, the basic wind speed (V) would be increased to reflect hurricane winds along the Atlantic coastline up to 100 miles inland. Therefore, the basic wind speed of BOCA does include the effect of hurricanes in this area.

Taking into consideration all of the above data, a 20 pound per square foot load for a building up to 30 feet in height is the minimum required wind load for the subject building.

JETWAY EQUIPMENT CORPORATION
subsidiary of STANRAY CORPORATION

REV. A

BY HONE DATE 11/28/79 SUBJECT DESIGN LOADS ON SUPPORT STRUCTURE SHEET NO 2 OF 2

CHKD. BY ____ DATE ____ PEDESTAL JETWAY JOB. NO ____

GATE 1

75/85

ATTITUDE		LOAD CONDITION		LOAD POINT (B'') (B') P_x KIPS	P_y KIPS	R_z KIPS	M_y FT-KIPS	M_x FT-KIPS
EXTENDED (OPERATIONAL)	1	DL		—	1.5	15.1	—	
	2	FLL		—	1.0	9.7	—	
	3	RLL		—	0.84 0.7	8.4 7.0	—	
	4	½RLL		—	0.42 0.4	4.2 3.5	—	
	5	12½ PSF WIND		3.2	—	±11.3	68.3	
RETRACTED (STOW)	6	DL		—	1.4	13.9	—	
	7	RLL		—	0.72 0.6	6.72 5.6	—	
	8	25 PSF WIND		5.1	—	±18.1	57.6	
DESIGN COMBINATIONS	OPER.	A	1+2+3 4	—	2.92 3.2	29.0 31.8	—	
		B	1+2+4±5	3.2	2.92 2.9	39.6 40.3 17.0 17.7	68.3	
	STOW	C	6+7	—	2.12 2.0	20.62 19.5	—	
		D	6+8A ±7	5.1	2.12 1.4	32.72 +32.0 −4.2 +2.52	57.6	

NOTE: TABULATED VALUES FOR P_x, P_y, & M_y CAN BE (+).

CERTIFICATION OF COMPLETION OF CONSTRUCTION

NEW YORK CITY

Owner's P.E. or R.A.:	submits certification of items of controlled inspection, for Code compliance. E.g. High Strength bolts, Structural welding, Concrete strength, Spray-on fireproofing, etc. (C26-106.3a)
Owner's Superintendent of work:	(not necessarity P.E.). Submits certification for other than controlled items. (C26-106.3b)
Building Department Inspection :	During construction, of various disciplines of Code concern: e.g., construction, plumbing, P & U, equipment, etc. (C26-120.5)
Final Inspection :	By Building Department, in presence of owner's P.E. or R.A., and if everything is complying, signed off. (C26-120.6) Building Department shall keep records of all inspections. (C26-120.8) Certificate of Occupancy is issued on basis of above records.

(continued)

JFKIA (Tenant Construction)

During construction:	Tenant's P.E. or R.A. submits official approvals (B.S. & A. or MEA) as required for materials and methods. PANY/NJ Resident Engineer inspects periodically.
Final Inspection:	Certificates for Controlled and Semi-Controlled inspection are submitted by Tenant's P.E. or R.A. A written statement is issued by the Tenant's P.E. that all work was done in accordance with PA approved drawings. Job is signed off by PA Resident Engineer, (in the presence of personnel from Tenant, Plant & Structures, Risk Management, Structural Integrity).

(continued)

NEW JERSEY

During construction:	periodic inspection by the Department (of Community Affairs with a Commissioner, and, the State and Local Enforcing Agencies with Construction Officials) of all disciplines of Code concern, such as foundations, Superstructure plumbing, electrical, etc. (NJUCC-11A2).
Final Inspection:	by the Department, to be signed off if everything is complying. (11A4). At this time Owner's "Responsible Person in Charge" shall submit a report as to the satisfactory completion of the project, in conformance with the approved documents. (11D4). Also, the Contractor shall make a statement as to safe and satisfactory execution of work, in conformance with the approved documents. (11D5e).

(continued)

NEWARK AIRPORT

Tenant Construction

During construction:	periodic (and frequent) inspections by PA Resident Engineer.
Completion:	PANY/NJ Resident Engineer reports the project completed. In case of major projects a formal document is written by the airport management, supported by the Airport Engineer and the Law Department. In case of small projects Resident Engineer signs a card for the office records.